

WHAT IS CLAIMED IS:

1. An imaging apparatus, comprising:  
a media carrier;  
5 at least two exposure heads spaced apart from one another, each exposure head disposed to image a portion of a single sheet of media secured on the media carrier, or one of at least two sheets of media secured on the media carrier; and  
an adjustable mechanism for moving the exposure heads relative to  
10 each other to change a spacing therebetween.
2. An apparatus according to claim 1 wherein the adjustable mechanism comprises a heater located to controllably heat a rigid spacer coupling the exposure heads.  
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3. An apparatus according to claim 1, wherein the media carrier is a cylindrical drum and the media is secured to an external surface of the drum.
- 20 4. An apparatus according to claim 3, wherein each exposure head is traversed by a leadscrew nut coupled to the exposure head and located on a common leadscrew and the adjustable mechanism comprises a coupling

between at least one of the leadscrew nuts and the associated exposure head capable of being displaced relative to the exposure head.

5. An apparatus according to claim 4, wherein the at least one of  
5 leadscrew nuts is displaceable by rotating the at least one of the leadscrew nuts on the common leadscrew.
6. An apparatus according to claim 5, comprising an auxiliary motor for rotating the at least one of the leadscrew nuts in response to signals  
10 provided by a controller.
7. An apparatus according to claim 4, wherein each of the leadscrew nuts is rotatable and the common leadscrew is held fixed.
- 15 8. An apparatus according to claim 3, wherein each exposure head is traversed by a separate leadscrew and leadscrew nut.
9. An apparatus according to claim 1, comprising a target, the target responsive to provide information regarding the location of an imaging  
20 beam for each exposure head.
10. An apparatus according to claim 9, wherein the target comprises a position sensitive detector.

11. An apparatus according to claim 9, wherein the target comprises a pair of lines on a background, the lines at a pre-determined angle to each other, the lines of contrasting reflectivity to the background.

5 12. An apparatus according to claim 9, wherein the target is located on the media carrier.

13. An apparatus according to claim 12, wherein the media carrier is a rotatable cylindrical drum and the target is held fixed in position by  
10 holding the drum in a fixed rotational position.

14. An apparatus according to claim 9, wherein the target is a single common target and the imaging beam location for each exposure head is determined with reference to the single common target.

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15. An apparatus according to claim 3 comprising a speed controller connected to allow a traverse speed of at least one of the exposure heads to be controlled sufficiently precisely to adjust a position of a last channel to within less than one beam width.

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16. A method of imaging with at least two exposure heads, the method comprising:

loading at least one sheet of media on a media carrier;

adjusting the spacing between the exposure heads in accordance with the number of sheets and the size of the media loaded on the media carrier; and

5       imaging with each exposure head, a portion of a single sheet of media secured on the media carrier, or one of at least two sheets of media secured on the media carrier.

17.   A method according to claim 16, wherein in the event of a failure of one of the at least two exposure heads the imaging of any number and  
10   size of media is completed by another one of the exposure heads.

18.   A method according to claim 16, wherein the relative spacing between the two or more exposure heads is adjusted by aligning each of the exposure heads to a target.

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19.   A method according to claim 16, wherein each exposure head has at least one imaging beam, the method further comprising determining the pointing location of the imaging beam and adjusting the spacing between the exposure heads in accordance with the pointing location of  
20   the imaging beam.

20. A method according to claim 16, comprising joining the portion imaged by each exposure head to form a unitary image on the single sheet of media secured on the media carrier.

5 21. A method according to claim 20, wherein the joining comprises at least partially overlapping the portions imaged by each exposure head.

22. A method for aligning two exposure heads for imaging a unitary image on a media, the unitary image partitioned into two sub-images, the  
10 method comprising:

imaging a first test image with one of the exposure heads;

imaging a second test image with the other exposure head, the second test image adjoining the first test image;

determining a degree of misalignment between the exposure heads  
15 by examining an adjoining portion between the first and second test images; and

adjusting a traversing speed for at least one of the exposure heads in accordance with the determined degree of misalignment.

20 23. A method according to claim 22, wherein the first and second test images at least partially overlap at the adjoining portion, the test images each having a plurality of regularly spaced features generally aligned along the adjoining area, the features of the second test image being

offset by a small angle to the features of the first test image so that a pattern of moiré fringes is created, the pattern being indicative of the degree of misalignment between the exposure heads.

5    24.    A method according to claim 23, wherein each test image comprises a plurality of regularly spaced lines.

25.    A method according to claim 22, wherein determining the degree of misalignment between the exposure heads comprises examining the  
10    adjoining portion of the test images to determine a degree of offset or overlap between the test images.

26.    A method according to claim 22, comprising imaging a series of first and second test patterns, each member of the series imaged with a  
15    differing traversing speed for at least one of the exposure heads and adjusting the traversing speed based on the series member with the best visual appearance.

27.    A method according to claim 22, wherein more than two exposure  
20    heads are used to image the unitary image and the method of claim 20 is repeated to align subsequent exposure heads to one another.

28. A method according to claim 22, comprising monitoring the temperature at one or more points in the imaging system and adjusting the traversing speed of the exposure heads so that the alignment is maintained with changing temperature.

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29. A method according to claim 22, further comprising monitoring the pointing of the beams from the exposure heads and adjusting the traversing speed of at least one of the exposure heads so that the alignment is maintained with any change in beam pointing.

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30. A method of imaging a unitary image on a media using at least two exposure heads, the method comprising:

receiving image data defining the unitary image;

partitioning the unitary image into at least two sub-images;

15 adjusting a traversing speed of at least one of the exposure heads to cause the sub images to precisely align at their boundaries; and

imaging each of the sub-images with one of the at least two exposure heads.

20 31. A method according to claim 30 wherein partitioning the unitary image into two or more sub-images comprises dividing the imaging data into two of more separate sub-images.

32. A method according to claim 30 wherein partitioning the unitary image into two or more sub-images comprises establishing at least one pointer in the image data, the pointer defining the partitioning between the sub-images.

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33. A target for determining the position of a laser beam, comprising a pair of lines on a background, the lines at a pre-determined angle to each other, the lines of contrasting reflectivity to the background.

10 34. A target according to claim 33, further comprising a light sensor disposed to sense the intensity of a reflected laser beam from the target.

35. A target according to claim 34, wherein the intensity of a reflected laser beam from the pair of lines is indicative of both the X and Y  
15 co-ordinates of the laser beam.